The Remediator

Newsletter of the Remediation and Redevelopment Division

www.michigan.gov/deqrrd

Summer/Fall 2006 Volume 1, Number 3

What's Inside

(Click on a page number to go directly to that article)

THIS ISSUE DEDICATED TO SHARON L. PICARD

This issue of "The Remediator" is dedicated to Sharon L. Picard who passed away at home on July 29, 2006, surrounded by the love of her friends and family. She was born in Muskegon, MI on September 3, 1944. She attended Muskegon Catholic Central High School, and then continued her education with a Bachelor's Degree from Western Michigan University and a Master's Degree from Michigan State University. She had worked for the State of Michigan for the past 27 years. Her most recent duties included overseeing the State Sites Cleanup Program and creation of "The Remediator." Sharon was an activist for Women's Rights and World Peace, two issues she felt vital for humanity's success. Her smile will be missed.

Obituary Published in the Lansing State Journal - July 31, 2006.

REFINED PETROLEUM FUND TEMPORARY REIMBURSEMENT PROGRAM CREATED

On July 20, 2006, Governor Granholm signed House Bills 6047 and 6202, and Senate Bill 1260 into law, with immediate effect. These three bills create the $45 million Temporary Reimbursement Program. The program is designed to assist certain Michigan Underground Storage Tank Financial Assurance (MUSTFA) claim holders, who were approved but did not receive full reimbursement under the old MUSTFA program before it became insolvent in 1995. This funding, of up to $50,000 per facility, will help owners and operators holding approved MUSTFA claims to make progress on closing their open, Class 1 or Class 2 releases from underground storage tanks. Only newly conducted work is eligible for this funding. More information about the program can be found by clicking "Temporary Reimbursement Program" on the Remediation and Redevelopment Division homepage at www.michigan.gov/deqrrd.

The package of three bills also provides $15 million to the Department of Environmental Quality to address high risk releases from underground storage tank systems where the responsible party is either unknown or not viable. A portion of the $15 million will cover the DEQ's administrative costs to implement the Temporary Reimbursement Program.

The Refined Petroleum Cleanup Advisory Council (Advisory Council) which was established in 2004 to make spending recommendations for the Refined Petroleum Fund, has been in a holding pattern pending the passage of the above legislation. With the enactment of these bills, the Advisory Council will turn its attention to developing a final recommendation for a longer-term program to be funded by the Environmental Protection Regulatory Fee of 7/8 cent per gallon for each gallon of refined petroleum sold for resale or consumption in the state. The recommendation is anticipated to be completed before the legislation creating the Advisory Council sunsets in December of 2006.

-Article by Sharon Goble, Part 213 Specialist

PHASE II OF THE PART 201 DISCUSSION GROUP PROCESS READY TO BEGIN

DEQ Director Steven Chester has invited approximately 50 people from outside the agency to take part in the next phase of the Part 201 Discussion Group to help set direction for the future of Michigan's cleanup program. The first meeting of this next phase is scheduled for September 25, 2006.

Michigan's cleanup and redevelopment program has been operating under the most recent statutory framework since June 1995. The statutory changes included the shift in the liability scheme from a strict liability standard to a causation based standard, establishing due care requirements for non-liable facility owners, and providing more flexibility for remedies by offering land-use based closure options. Now that several years have passed we are interested in carefully examining ways to increase the number of cleanups conducted, increase compliance rates, make the program easier to implement, and assure the best tools and strategies are available to facilitate brownfield redevelopment.

Four key topic areas have been established for further discussions:

- Liability
- Program complexity/technical requirements
- Program administration
- Brownfield redevelopment

Multiple meetings for each of these subject areas are expected to take place over the next several months. To help assure productive discussion, each session will be facilitated by experienced staff of Public Sector Consultants, Inc.

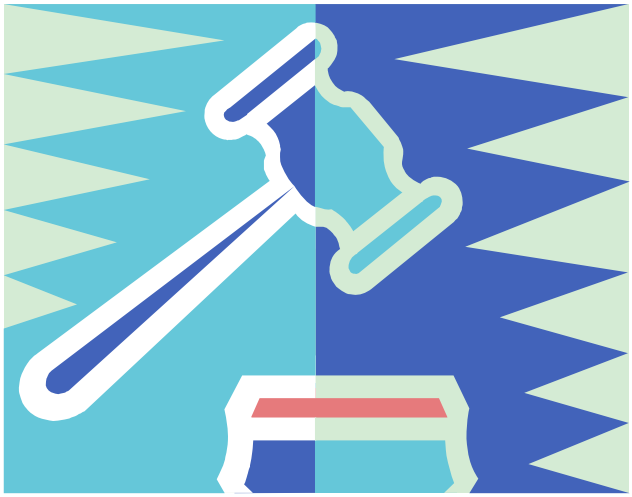
The kickoff meeting for all participants has been scheduled for Monday, September 25, 2006. The meeting will be held in Ballroom E and F of the Sheraton Lansing Hotel. The Sheraton is located at 925 Creyts Road. The meeting will convene at 10:00 a.m. and run until 3:30 p.m. The meetings will be open to the public.

-Article by Andrew W. Hogarth, RRD Division Chief

PART 213 COMPLIANCE REMINDER

Owners and Operators of underground storage tanks, and their consultants have important compliance obligations with regard to the initial response actions required by subsection 324.21307(2) of Part 213, Leaking Underground Storage Tank, of the National Resources and Environmental Protection Act, 1994 PA 451, as amended, following the confirmation of a release from an underground tank system. This section requires the owner or operator, or a consultant retained by an owner or operator to immediately begin and expeditiously perform all of the following initial response actions:

(1) Identify and mitigate fire, explosion, and vapor hazards;
(2) Take action to prevent further release of the regulated substance into the environment;
(3) Identify and recover free product in a manner that minimizes the spread of contamination into previously uncontaminated areas;
(4) Use abatement of free product migration as a minimum objective for the design of the free product removal system;
(5) Handle any flammable products in a safe and competent manner to prevent fires or explosions;
(6) Excavate and contain, treat, or dispose of soils above the water table that are visibly contaminated with a regulated substance if the contamination is likely to cause a fire hazard or spread and increase the cost of corrective action; and
(7) Take any other action necessary to abate an immediate threat to public health, safety, or welfare, or the environment.



At numerous sites, free product and highly contaminated source soils are not being addressed in compliance with this provision. In a recent incident, free product that was discovered in the underground storage tank cavity sump

well, was not being addressed expeditiously, due to the need to remove the tanks to address the release. The delay in removing free product expeditiously from a leaking underground storage tank cavity sump resulted in free product entering a storm sewer system, creating the potential of acute impacts to receptors from the spread of the contamination. Although the department recognizes the expense associated with tank removal, quick completion of required initial response actions, in the long run, will result in a less costly response, and more timely closure of the release. In other instances, excavation of soils at the source of release has not been implemented immediately following confirmation of a release. The department has noted that in certain circumstances where a subsequent release is confirmed, the owner or operator chooses to integrate corrective action activities with the on-going remediation of a previous release at the site. Please be advised that the law does not provide the option to forego initial response actions if there is another open release at a site. The importance of timely closure of releases will be emphasized as the department seeks to increase compliance with subsection 324.21307(2) of Part 213.

Failure to comply with these obligations generally increases the difficulty, cost, and duration of corrective action, unacceptably extending the length of time to achieve closure of the release. Therefore, it is imperative upon discovery and confirmation of a regulated substance release from an underground storage tank, that owners and operators immediately implement the required initial response actions to effectively mitigate the public health and environmental risks from the release, as well as to control the cost of future corrective actions.

If you have any additional questions, you may contact your nearest DEQ-RRD District Office. If you need help identifying which District Office to contact, the operators at the Environmental Assistance Center at 1-800-662-9278, or at deq-ead-env-assist@michigan.gov can help you find the District Office closest to you.

-Article by Sharon Goble, Part 213 Specialist

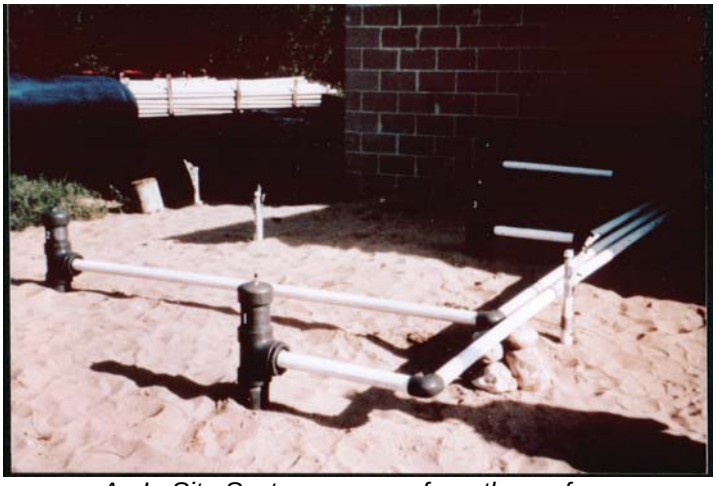
Quote for the Day:

"If you tell the truth, you don't have to remember anything."

— Mark Twain (1835-1910)

APPLICATION OF PART 31 WATER RESOURCE PROTECTION RULES TO IN SITU INJECTIONS

The following is intended to clarify the DEQ's position regarding the application of the Part 31[1], Part 22 Groundwater Quality[2] rules to discharges of materials to groundwater when the discharge is for the purposes of *in situ* remediation of contamination. Generally, any direct or indirect discharge of a material (liquid, solid, or gas) into groundwater or onto the ground for the purposes of *in situ* remediation must be authorized by a groundwater discharge permit or an appropriate permit exemption under the Part 22 rules. For most types of *in situ* remedial discharges, prior approval of a remedial investigation, feasibility study, or remediation plan from the Remediation and Redevelopment Division (RRD) will be required before the discharge can be lawfully implemented. This notification also establishes the basis for requiring RRD approval for proposed *in situ* injections/discharges. In addition, this notification will help to promote a more consistent statewide application of Part 22 to discharges associated with environmental response activities.



An In Situ System as seen from the surface

The Part 22 rules provide standards for discharges to groundwater, which include provisions for certain items to be discharged without a permit. As provided in R 323.2210(u), a discharge of "wastewater" [see R 323.2201(o)] associated with an environmental response activity is listed as an item that is permitted to be discharged without a permit; however, there are limitations that apply. Among these, R 323.2210(u)(iii) requires that discharges exceeding the residential criteria authorized by section 20120a(1)(a)[3] or section 21304(a) [4], as applicable

[1] Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA)
[2] Part 22 Groundwater Quality, rules promulgated under Part 31,of the NREPA
[3] Part 201, Environmental Remediation, of the NREPA
[4] Part 213, Leaking Underground Storage Tanks, of the NREPA

("residential criteria") have a plan that is approved by the department division that has compliance oversight. Note that the DEQ has determined that the RRD is the division that has compliance oversight regarding R 323.2210(u) for remedial discharges at Part 201 facilities and Part 213 sites.

The permit exemption allowed under R 323.2210(u) was developed primarily to address wastewater discharges associated with pump-and-treat-type systems and does not directly consider *in situ* remediation methods.

However, the DEQ has determined that *in-situ* remedial discharges meet the definition of wastewater discharges that are subject to R 323.2210(u) (see Appendix A of attached draft Operational Memorandum No 4, Attachment 9 for further explanation of this determination). Alternatively, if in-situ discharges did not meet this definition, they would not qualify as items permitted to be discharged without a permit.

"The DEQ has determined that in-situ remedial discharges meet the definition of wastewater discharges…"

The specific provisions of 2210(u) that apply to *in situ* remedial discharges include the following:

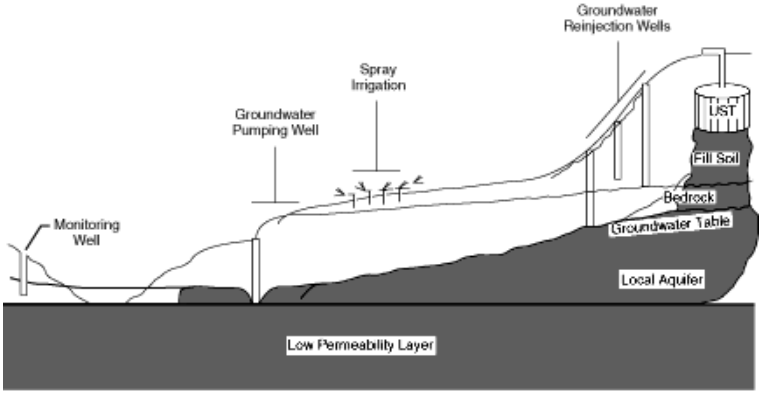
(ii) A remedial investigation, feasibility study, or remedial action discharge that is at or below the residential criteria;

(iii) A discharge for a remedial investigation, feasibility study, or remedial action above the residential criteria, if a remediation investigation, feasibility study, or remediation plan has been approved by the department division that has compliance oversight. The remediation plan shall indicate that the treatment system is designed and will be operated so that contaminated groundwater will eventually meet the appropriate land use-based cleanup criteria authorized by section 20120a(1)(a) of the act, if applicable, or section 21304(a) of the act, if applicable.

The definition of a "discharge" [see R 323.2201(i)], includes any direct or indirect discharges; therefore, the determination of which of the above apply must consider the content of the discharged material(s), including any additives contained therein, in addition to all potential secondary effects that may result from the discharge. Also, note that the definition of a discharge is not limited to discharges of liquid materials, but rather, also applies to discharges of solids and gasses. If a discharge has a reasonable potential to result in an indirect discharge that may exceed residential criteria, even if the content of the discharged material(s) in and of itself does not exceed residential criteria, then the discharge is subject to division approval pursuant to R 323.2210(u)(iii) before the discharge can be lawfully implemented. In determining the applicability of R 323.2210(u)(iii) to a particular *in situ* remedy, the potential for indirect or secondary discharges requires thorough evaluation.

"Also, note that the definition of a discharge is not limited to discharges of liquid materials…"

Generally, the DEQ considers R 323.2210(u)(iii) applicable whenever the discharge may result in the following conditions: (1) Alteration of the geochemical equilibrium in the subsurface in a manner that promotes leaching of metals; (2) Formation/creation of reactive, hazardous, or otherwise non-inert byproducts, including hazardous "daughter" products formed from the breakdown of the originally released material(s); or (3) Exacerbation of existing contamination. For example, injection of hydrogen peroxide is a relatively common method proposed for treating petroleum contamination *in situ*. Although residential criteria have not been developed for hydrogen peroxide, injection of this acidic and oxidative material has been shown to cause metals to leach from soil into groundwater. Similarly, supplementation of an aquifer with microbes, nutrients, and/or a food source to promote bioremediation can also substantially alter groundwater geochemical conditions such that metals leach into groundwater. Therefore, either of these types of remedies requires approval pursuant to R 323.2210(u)(iii).



Remedial discharges that involve oxidative or enhanced biological processes (including pilot tests) are subject to division approval pursuant to R 323.2210(u)(iii). This includes (but is not limited to): hydrogen peroxide (including Fenton's Reagent or any "modified" Fenton's Reagent), permanganates, persulfates, ozone, reductive dehalogenation or other enhanced bioremediation. Be advised that this is not all-inclusive and that other types of *in situ* remedies not identified herein may also be subject to division approval. Please contact the RRD project manager

if there are any questions pertaining to the applicability of R 323.2210(u)(iii) to a particular *in situ* remedy.

In anticipation of questions regarding the application of R 323.2210(u) to remedial discharges of oxygen or ambient air to groundwater (i.e. oxygen or air sparging), the DEQ has determined that these discharges, when specifically used to treat hydrocarbon contamination, are authorized under R 323.2210(u)(ii) as items permitted to be discharged without a permit and without prior approval by the RRD. The basis for this determination is that in most applications, it is not expected that operation of an oxygen or air sparge system would create a direct or indirect discharge above Residential criteria. This determination is based on the condition that there are no contaminants in the oxygen or air, including contaminants such as compressor oils. However, although these discharges do not typically require prior division authorization, this should in no way be construed to waive any obligations to comply with other requirements under the Part 22 Rules or Part 201 and/or Part 213 (as applicable). Note that Part 213, Section 21309a has very specific requirements regarding the implementation of corrective actions and this information must be submitted prior to implementing any *in situ* remedy, unless the remedial discharge is specifically intended to meet initial response obligations under Part 213, Section 21307.

Regardless of whether an in situ discharge qualifies as an item that is permitted to be discharged without a permit under R 323.2210(u)(ii) or (iii), the discharge must comply with all other provisions of the Part 22 Rules, Part 201, and/or Part 213 (as applicable). For example, the person or persons completing the discharge remain responsible for taking precautions to ensure that the discharge does not result in unacceptable exposures (such as could occur if the sparge system results in increased volatilization and/or vapor migration), does not exacerbate contamination (such as could occur if a sparge system was operated in an area of free product or heavily contaminated groundwater without hydraulic controls), or does not otherwise create fire, explosion, or vapor hazards. Further, "the discharge shall not be, or not be likely to become, injurious [R 323.2204(a)]," and "shall not cause nuisance conditions [R 323.2204(a)]."

In order to ensure timely review, the RRD recommends that submittal of plans for remedial discharges that are subject to RRD approval be followed by telephone or email notification to the RRD project manager that a review is needed. For Part 213 plans the Final Assessment Report Cover Sheet should be completed. The RRD is developing an internal document intended to help guide the review process. Although this document was intended for internal use, the RRD believes that it will also be beneficial to the regulated community in determining whether a discharge under R 323.2210(u)(ii) or (iii) is appropriate. A copy of the draft document may be obtained through the RRD project manager. In addition, Operational Memorandum No 4, Attachment 9, has completed the peer review process and comments received from those who participated in the process are being incorporated into a revision that will provide more specific guidance regarding *in situ* remediation. The document will be available in the near future. If there are further questions regarding this matter, or if site-specific guidance is needed regarding discharge requirements, please contact the RRD district project manager.

-Article by Patricia Brandt, Part 201 Specialist

THE DIFFERENCE BETWEEN "GIS" AND "GSI"

Do you know the difference? The definition for each is listed below:

GIS - means Geographical Information System, usually a computer program that allows you to correlate and locate spatial data on a map.

GSI - means Groundwater/Surface water Interface, where the two meet. Rule 299.5716 identifies how compliance with the GSI criteria is to be established and/or monitored.

USTFIELDS PILOT GRANT SUCCESS STORY

On May 24, 2006, the Kalamazoo Valley Habitat for Humanity (KVHH) held an open house for its most recently completed project, a single family home at 937 Hazard Street in Northeast Kalamazoo. Construction of the home began in September of 2005, utilizing some 60 students from seven area high schools who were enrolled in the Kalamazoo Regional Education Service Agency, Education for Employment Construction Trades Program. The building of a new home on this property is the culmination of combined efforts of city economic development officials, the DEQ, and the US Environmental Protection Agency, Office of Underground Storage Tanks (EPA). A family was moved into the house in June.

(cont'd on next page)

Project Background

The property is the site of the former Morrison Road Oiling Company. A file review by the DEQ noted a historic petroleum release from a 20,000 gallon used oil tank which had been removed from the ground in 1988.

In July 2002, the DEQ was awarded an USTfields pilot grant from the EPA. Utilizing the funding provided by the grant, full Phase I and Phase II Environmental Site Assessments were conducted at the site. A ground penetrating radar (GPR) survey identified three small areas of buried debris, including some metal piping. Along with the debris, approximately 220 tons of petroleum- impacted soil, with levels of contamination above the DEQ's residential cleanup criteria, was removed from the site and transported to a landfill. The groundwater investigation found no impact. A site closure report was submitted to the DEQ in early 2004, paving the way for residential redevelopment.

More information on KVHH can be found on their website at:
http://www.kzoo.edu/studev/stucomm/org/present%20orgs/Habitat%20for%20Humanity.htm.

More information on the City of Kalamzoo's Brownfield Redevelopment program can be found at:
http://www.kalamazoocity.org/portal/econdev.php.

-Article by Ron Smedley, Program Support Section

INSIDE THE RRD

Arrivals:

Senior Executive Management Assistant Susan Joseph effective July 2, 2006. Susan reported to work with RRD on Wednesday, July 5, 2006 and comes from the Department of State Police where she has been the administrative assistant to a division director for the last four years. Susan has nearly 20 years of experience working for the State including time with the Departments of Community Health, State, Education, Consumer and Industry Services, and seven years with the Michigan State Police. She will bring with her substantial leadership, organization, planning, decision-making and communication skills.

Accounting and Budget Unit Supervisor, Kirsten Gasper. Kirsten was previously employed with RRD until September 2002. And although she has been with us since February 2006 on contract, Kirsten's effective date is September 11, 2006.

Two Environmental Quality Analysts for the Part 213/215 Enforcement Unit:

Lyla Cremeans a Michigan native, who grew up in Eaton County, recently returned to Michigan after spending 11 years in military service. She holds a B.S in Environmental Studies and Policy from the University of West Florida in Pensacola. She has worked with Northwest Florida Water Management District and has other resource conservation experience.

Jaclyn VanOverbeke comes to us from Water Bureau, where she worked as a student intern in the Well Head Protection Program. She has also held positions with the Office of the Governor and the DNR's Fisheries Division. Jaclyn recently obtained a B.S. in Environmental Studies and Application from Michigan State University.

Departures:

Senior Executive Management Assistant Patty Hartsuff retired August 1, 2006.

CLEANUP OF MINE CONTAMINATION: A CASE STUDY OF THE SYNERGY OF COOPERATION

This is not an environmental story about landfills, wetlands, wildlife protection, industrial waste, abandoned mines, dust storms, human-induced earthquakes or contaminated soil, surface water or groundwater.

This is a story about all of those issues intersecting.

It involves more than 14,000 not-so-pristine U.P. acres nestled between the Porcupine Mountains and the tiny town of Ontonagon, Mich.; a local Native American tribe; a mammoth mining company; local citizens' groups; and state environmental regulators.

The massive site was home to the White Pine Mine, owned by Copper Range Co., which shut down its operations in 1995, leaving behind a mess of environmental issues on an area three times the size of Michigan State University's campus.

After nearly a decade of work by environmental and company leaders, everyone is – surprisingly, according to some – happy with the story's finale.

"That's what happens when you have a good working relationship," said Josh Mosher, a Department of Environmental Quality (DEQ) employee who worked on the project.

Both DEQ and White Pine representatives said mutual openness and cooperation were responsible for the site's successful cleanup and redevelopment.

"A lot depends on the company. If everyone is working well together, you can get to good remedies and get to them quickly," said Bob Delaney, the DEQ expert primarily responsible for overseeing the plan that continues to clean up the former mining site. "Companies that have a lot of resources can move mountains, and these people moved mountains – literally, in fact."

Mike Cooper, an environmental consultant hired by Copper Range Co., said the state was proactive. "I've worked with agencies from across the country, and this has been one of the most positive experiences I've ever had," he said

"I've worked with agencies from across the country, and this has been one of the most positive experiences I've ever had,"

- Mike Cooper, MFG, Inc. out of Boulder, Colorado.

"The flexibility involved really can't be overstated," said Craig Ford, Copper Range's point man on the project. "There was a willingness to look at different kinds of solutions that would all improve the environment in order to find the one that was most cost effective. Unlike other state environmental agencies I've worked with, they're very practical and they don't hold things up. That being said, a lot of work still went into this, and they still held us to a high level of accountability."

So what kinds of problems were found at a copper mining site that had been operating for more than 100 years? Delaney said it was a mixture of problems typical to a major industrial complex – dumps, landfills, barrels of waste and contaminated soil, surface water and groundwater – as well as some very unusual problems that yielded some creative solutions.

More than 8 square miles, known as "tailings basins," were covered with the leftovers from the mining operation – a rock powder so fine it appeared like talc or baby powder. Without the waste water generated from daily mining operations to wet it down, this fine particulate matter was liable to create huge dust storms in the neighboring town.

"It wasn't hazardous to human health because the metals were no longer there and the particle size was too big to get deep into the lungs," Delaney said. "But it was a big nuisance, especially for people who already had breathing difficulties."

South Tailings Basin

Those 5,000 acres of tailings are being redeveloped into prairie lands and wetlands native to the area, eliminating the dust storm nuisance and creating a safer habitat for wildlife. About seven eagles have since made the redeveloped area their home.

"It's one of the most beautiful places in Michigan now," Delaney said. "You feel like you're out on the Serengeti. It was quite a dramatic change."

But below ground was another unusual problem: 2,600-foot(or ½ mile)-deep mine shafts, drilled so deep that salty water was slowly filling them up and heading for fresh water bodies. The salt water was formed thousands of years ago, as fresh water seeped through natural pipelines of sand and old sea beds, picking up salts until it eventually settled deep underground.

State environmental officials worried the salt water, which normally would be trapped underground, would move through the abandoned mine shafts and contaminate fresh water sources.

The solution: Cause an earthquake.

A local tribal group proposed an idea, and the Copper Range Company implemented it. The tribe and DEQ scientists recognized that a

Filling the Salt Mines with Fresh Water

layer of fresh water pumped into the dormant mine shafts could provide a barrier to prevent lower salt water layers from infiltrating the mine shafts, contaminating upper freshwater layers. The combination of the added pressure of freshwater above and the heavier density of the saltwater below could likely create an effective barrier that would prevent the saltwater migration into the upper freshwater layers.

However, filling the mine shafts with fresh water from Lake Superior, created so much pressure, the filling caused a minor earthquake.

"It was less than a three on the Richter scale. It didn't harm anyone, just rattled some dishes," Delaney said. "When filling the mine with water , we knew that might happen … but putting fresh water on top of saltwater was a good idea proposed by a group that at the time had been antagonistic [to the mining company]. A lot of good came out of it, and the idea was used by the company to solve a real problem."

Because this is a first-time problem and solution for the DEQ, Delaney said although the science is logical, they're "not 100 percent sure" it will work. The DEQ is monitoring the underground water supply and has developed a contingency plan with Copper Range in case Plan A doesn't work: a trust fund created by the company that would allow the DEQ to construct a water treatment plant to desalinize the water.

The rest of the challenges left behind by the copper mines, though typical in form, were atypical in scope.

The low levels of copper contamination in the top six inches of soil at White Pine Mine site, did not necessarily pose a danger to animals. However, copper is very toxic to aquatic plants, and the 10 square miles of copper-contaminated soil posed an unacceptable hazard to aquatic plants, due to its potential to runoff into surface water, according to Delaney.

"It was really a small amount of copper, only unusual because of the affected area [of the land], but we wanted to manage the levels to be protective if it eroded into nearby streams," Delaney said. Land deeds for the area have been tagged to require future land users to pay close attention to erosion control laws.

More deed restrictions were also placed on the parts of the site that processed and refined the copper. According to Delaney, the area where the smelting plant had been located "was a classic environmental site" ripe with multi-colored soil and concentrated liquid wastes.

"We couldn't remove all of that because much of it was covered with buildings," Delaney said. "The exposed soil and roads were covered so that the water that falls on them does not flow into the wetlands … There are also no connections between the nasty stuff and the groundwater now."

Because the mining site was so large, it originally hosted several small landfills and other sites that had barrels of contaminated waste. The DEQ and Copper Range decided to transport all of the site's waste to one central location, a newly constructed landfill with the best environmental construction.

"That made everyone's job easier. It would have been a lot of work at each location otherwise," Delaney said. "None of the other remedies would have been as complete or effective as that one. They would have been protective [and therefore met legal requirements], but not nearly as solid."

According to Delaney and other DEQ staff members, Copper Range paid not only for all of the cleanup that it was doing, much of which was above-and-beyond legal requirements, but also every part of the oversight the state did there – money that otherwise would have come out of taxpayers' pockets.

"People have to want to get it done because there are a lot of things that can stop it from getting done, at least in a quick period of time," Delaney said. "If I could explain why I wanted certain data, they would do it. They protected their interests, but they were always open-minded."

Cooper, the environmental consultant who worked for Copper Range and with the DEQ, echoed Delaney's sentiments. "It was very positive in both regulatory and scientific regards … [Delaney] would balance what was required from the DEQ's point of view while still working with Copper Range on their needs … He was really geared toward getting work done and was never overly technical, legalistic or bureaucratic."

"We wanted to do this at a reasonable cost, but we also wanted to do the right thing,"

- Craig Ford, Ph.D.,Vice-President of Safety, Environmental & Community Affairs for Inmet Mining Corporation, owner of Copper Range Company

Ford, the director of the Copper Range site, said the company had two goals: 1.) to clean up the site at the lowest cost for its business, and 2.) to "leave behind some kind of legacy."

"We wanted to do this at a reasonable cost, but we also wanted to do the right thing," Ford said. "And we didn't just want to remediate and

clean up the contamination, we wanted to redevelop the whole site to make it desirable for other businesses to come in and use. We don't want to have a financial void in these places when we leave."

Redevelopment at the former mine site has included:

- A new laboratory and office space for a biopharmaceutical company located in what was once an above-ground portion of the mine, plus underground growth chambers for genetically engineered plants. "One interesting note about copper – because it's so unfriendly to plants, it created the perfect spot for the pharmaceutical company. Unwanted molds don't grow there as they might in a typical greenhouse," Delaney said.
- The construction of a water treatment plant, which utilizes the mine's existing pipelines to draw water from Lake Superior and distribute it throughout much of the county.
- The sale of the existing copper refinery to another mining company, which is using it to refine copper mined in Canada.
- The use of the existing mine power plant to produce electricity for the refinery and the public utility.
- The expansion and update of the onsite waste water treatment plant, control of which was given to the county.
- The reuse of waste material at off-site locations for use in roof shingles, railroad ballast and asphalt.
- The sale of several portions of the facility to smaller businesses and private individuals for recreational uses, such as vacation homes and hunting camps.

In comparison to most other Michigan sites needing cleanup, the Copper Range mine wasn't the most polluted, but it was probably among the most complex in terms of the size and diversity of problems found there. According to Pat McKay, DEQ's Section Chief of Compliance and Enforcement, Copper Range could have used that complexity to hide from its responsibilities, but didn't.

"We don't experience this level of cooperation to address contamination often enough," she said. "In many cases, the company is not sincere about eliminating the health and environmental risks caused by their past operations and waste management practices. Their level of commitment to address the contamination soon wanes, but they remain willing to spend 20 years in the courts and the environment is not helped."

"Copper Range backed their efforts with a corporate guarantee," McKay continued. "The parent corporation, [InMet], wanted to ensure that things were done right."

Without Copper Range's cooperation, the site might have been termed "orphaned," leaving it to the state or federal Superfund program to spend many years and millions of taxpayers' dollars on the project.

"We've spent a heck of a lot of money," Copper Range's Ford said. "But it's a heck of a lot less than we all could have spent."

-Article by Katie Coleman, DEQ Student Intern, with Bob Delaney, Lynelle Marolf, and Sharon Goble

METHANE GAS BUILDING CODE REVISION

Due to the increased demand for land in our urban environments, development of land adjacent to former waste disposal sites is becoming a more common practice. There are more than 1600 old dumps and landfills in Michigan. Information about these sites is limited and the resources available are insufficient for thorough investigations. Because of this, there is a need to regulate such development, as methane gas from these disposal sites can pose a potential explosion hazard to buildings and their occupants. To prevent explosions such as what happened at Stan's Trucking Landfill (see picture), the RRD is attempting to address this growing concern by amending the state building code.

Stan's Trucking – House Explosion

RRD initially contacted the Department of Labor and Economic Growth (DLEG) in late December of 2003 to discuss the process required to amend the codes. DLEG was very receptive to this initial inquiry. During the next several months, RRD staff met with DLEG to discuss a strategy for amending the building code and what was needed to comply with their schedule and process. The Radon Control Method Appendix in the building code was used as a guide in developing proposed code revisions for methane, since problems controlling radon and methane are very similar in nature.

Stan's Trucking – House Explosion

The document went through many iterations over the next several months, including incorporating comments from RRD district staff and also from Waste and Hazardous Materials Division staff. It was apparent early on that the most critical element of the document was going to be identifying those areas having a potential for methane gas hazards, determining when this code would apply. The language we settled on can be found in the first section of our proposed Appendix. The Code Review Committee, authorized by the Stille-Derossett-Hale Single State Construction Code Act, 1972, PA 230, felt that this approach placed too much burden on the local authority and did not approve the code revision request based on this language. A decision has not yet been made whether or not we will attempt to revise the building code during the next cycle of amendments.

-Article by Gary Simons, Chief, Contract Procurement Unit

DEQ/RRD HOSTS INTERNATIONAL VISITOR

On May 19, 2006, Daria Devantier from RRD's Superfund Section, along with Greg Danneffel from the Water Bureau, hosted Dr. Wang Hua from the Peoples Republic of China. Dr. Wang has the responsibility for providing input in regard to cleanup and monitoring efforts on the Yangtze River. The organization that sponsored her visit, the International Visitor Leadership Program, was aware of the remediation and redevelopment needs for the Kalamazoo River Superfund Site and suggested Michigan as one of her stops on a 21-day tour in the USA. One of the things Greg and Daria learned from Dr. Wang is that she battles more cleanup issues on the Yangtze River associated with human waste disposal as opposed to chemical waste disposal. Dr. Wang acknowledged that China benefited from much of our country's early environmental laws and programs, as the initiation of those laws and programs paralleled China's industrialization and manufacturing activities along the Yangtze River.

-Article by Daria W. Devantier, Superfund Section

OPERATIONAL MEMORANDUM UPDATES

The revisions from the comments generated during the peer review process have been completed for the following Operational Memorandum (Op Memo) No 4 documents:

- Op Memo No. 4 Interim Final Attachment 7, Groundwater Modeling
  - Issued May 2, 2006.
  - RRD will continue to accept comments until October 31, 2006.
  -
- Op Memo No. 4 Interim Final Attachment 3, Sediments
  - Issued August 1, 2006
  - RRD will continue to accept comments until February 1, 2007

Op Memo No 1 Attachment 4, Groundwater Contact Criteria Technical Support Document was released July 6, 2006.

The peer review process is ongoing for the following Op Memo documents:

- Op Memo 6, Institutional Controls And Public Notice Requirements
- Op Memo 4, Attachment 5, Methane

For a summary about Op Memo development and the peer review process see our Summer 2005 Newsletter. Watch for list server notices for the release of additional documents.

-Information Provided by Patricia Brandt, Part 201 Specialist

RECENT PRESS RELEASES ON THE WEB

- Calendar Link
- RRD Press Release Link

September 2006

- DEQ and EPA to Begin Cleanup of Lead at Residential Properties in Hamtramck
- Court Upholds DEQ Penalty Imposed Upon Former Monroe County Underground Storage Tank Owner
- DEQ Resolves Sediment Violations with Alden Nash Properties

August 2006

- New DEQ Program to Address Leaking Underground Storage Tanks
- Settlement Reached with BASF on Riverview Site

July 2006

- Cox Files Lawsuit Against Former Auburn Hills Landfill Owner/Operators
- Settlement Reached with Diamond Chrome Plating Company
- Agreement Reached with Eagle Picher
- August 9 Community Meeting to Discuss Dow Corrective Action Work
- Cox Announces Victory in Efforts to Clean-Up Traverse City's Boardman River
- State to Share Costs in Cleanup on St. Mary's River

June 2006

- State to Take Over Water Treatment System in Leelanau County DEQ Efforts Will Keep Residents Safe
- Plea Agreement Reached for Storage Tank Violations

May 2006

- DEQ Project will Protect Families in Laketon Township

April 2006

- May 10 Community Meeting to Focus on Review of Dow Remedial Investigation Work Plans and Sampling Plans for Summer

March 2006

- Court Upholds Penalty Imposed Upon Presque Isle County Gas Station Owners
- Contamination Cleanup Effort in Cheboygan to Create New Development Opportunities
- $2 Million DEQ Project is Catalyst for Detroit Riverfront Revitalization

To Subscribe to The Remediator:

The RRD manages two listservers: DEQ_RRD_NEWSLETTER and DEQ-RRD. The DEQ-RRD_NEWSLETTER provides information three times a year on the programs managed under the Remediation and Redevelopment Division. The DEQ-RRD provides notifications on all RRD managed programs, and Internet postings and the Leaking Underground Storage Tank Program. Click on one of the links below and add your name and email address into the email: DEQ_RRD_NEWSLETTER, or DEQ-RRD.

The DEQ Remediation and Redevelopment Division (RRD) administers programs that facilitate the cleanup and redevelopment of contaminated sites statewide, providing for a cleaner, healthier and more productive environment for you! The purpose of this newsletter is to provide information about our programs, specifically, Part 201 (Environmental Remediation) and Part 213 (Leaking Underground Storage Tanks) and portions of Part 215 (Refined Petroleum Fund - formerly Michigan Underground Storage Tank Financial Assurance [MUSTFA]), of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. In addition, the RRD manages portions of the federal Superfund Program, established under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). For information or assistance, contact MDEQ, RRD, P.O. Box 30426, Lansing, MI 48909; 517-373-9837; fax: 517-373-9657; http://www.michigan.gov/deqrrd We are located in Constitution Hall, 525 W. Allegan, Lansing, MI This publication may be copied. Please give credit to DEQ/RRD